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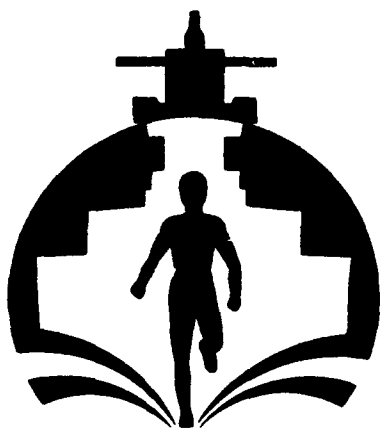
Navy Physical Conditioning Guide



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NAVPERS 15603

Navy Physical Conditioning Guide

DEPARTMENT OF THE NAVY
NAVAL MILITARY PERSONNEL COMMAND
WASHINGTON, D.C. 20370-5000

IN REPLY REFER TO
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From: Commander, Naval Military Personnel Command

Subj: NAVY PHYSICAL CONDITIONING GUIDE

Ref: (a) OPNAV Instruction 6110.1D

Encl: (1) Navy Physical Conditioning Guide

1. The program guide at enclosure (1) is forwarded to assist you with your command directed Physical Readiness Program, reference (a). It has been developed to help reach the Chief of Naval Operations goal of all service members meeting Physical Readiness Test and body composition standards.

2. Reference (a) and this guide are to assist members of your command who need help meeting Physical Readiness Test or body composition standards. It may be used to establish effective command directed physical conditioning programs. Individual copies may be reprinted locally.

3. All personnel should have a safe and comprehensive physical conditioning program as a part of their regular activities. This guide provides information on the basic components of physical fitness and describes exercises to develop these abilities. Implementation of conditioning programs at both ship and shore installations is also addressed. Point of contact for this program is NMPC-68, (A) 224-5742, (C) 694-5742.

R. W. West Jr.

R. W. WEST, JR.
By direction

Distribution:
SNDL Parts 1 and 2 (less Marine Corps field addresses not having Navy personnel attached)

Physical Readiness Training

PREFACE

This guide provides information on the basic components of physical fitness and exercise formats for use at ship and and shore installations. It also provides individual service members with information useful in attaining and maintaining an acceptable level of fitness. Command Fitness Coordinators (CFC) should use this guide to implement effective command directed physical conditioning programs. This guide when used in conjunction with the Navy Nutrition/Weight Control guide will help CFCs develop a command Physical Readiness Program. This material is an essential part of CNO's goal of all Navy members meeting Physical Readiness Test and body composition standards.

This manual was developed by
LCDR Ed Marcinik, Ph.D.
Health and Physical Readiness Division
Naval Military Personnel Command
Washington, DC 20370-5605

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Physical Activity as a Way of Life

Increasing daily physical activity is the first step toward greater physical fitness, especially if you have been inactive. If you have been sedentary you cannot expect your fitness to improve overnight with a sudden increase in physical activity. Instead of working out the week before the Physical Readiness Test is given, you should start thinking in terms of a lifelong commitment to a more active lifestyle.

Be sure to select the types of activity that you enjoy. Working out should be fun. It should be rewarding and enjoyable. It should be something you look forward to doing.

You should also exercise on a regular basis. It is much better to run three miles, three times per week; than nine miles, one time per week. Set up a regular exercise routine listing the type and frequency of your workouts, the length of time of each workout and how you will fit them into your daily work schedule. Remember to start off slowly and build up gradually. It is better to start off walking a couple miles than running one, five-minute mile. Once your aerobic fitness increases and you lose some body fat, try to increase the frequency and duration of your workouts.

Whatever you do, stay with your program. Even if you miss an occasional workout or don't see rapid progress, don't get discouraged. By becoming and remaining physically active, you will notice a significant change in your attitude and energy level as well as your physique!

Components of Physical Fitness

INTRODUCTION

FLEXIBILITY FITNESS

Flexibility is the ability to move joints through their entire range of motion. As an example, lack of flexibility of the hamstring muscles and muscles/ligaments of the back are related to an increased risk of lower back injury. The Navy field test to assess this component of fitness is the sit-reach test.

CARDIORESPIRATORY (AEROBIC) FITNESS

Cardiorespiratory fitness is the ability to participate in sustained, vigorous physical activity for extended periods of time. Cardiorespiratory fitness is related to the efficiency of the heart, lungs and blood vessels to deliver oxygen to the working muscles. The standard measurement of this fitness dimension is termed maximal oxygen uptake ($\dot{V}O_2$ max). The greater your cardiorespiratory fitness level, the higher your $\dot{V}O_2$ max value. The Navy field tests to measure this component of fitness are the 1.5 mile run/walk and 500 yard swim.

MUSCULOSKELETAL FITNESS

Musculoskeletal fitness is a combination of muscular strength and muscular endurance. Muscular strength is the ability to exert maximal force during a single contraction. Muscular strength is often represented as the maximal amount of weight lifted during a single repetition (1 repetition maximum (1RM)). Muscular endurance is the ability to sustain repeated muscular contractions without undue fatigue. Curl-ups and push-ups are the Navy field tests used to determine muscular endurance.

BODY COMPOSITION

Body composition is the relative amount of total body weight made up of fat and lean tissue. The Navy uses a percent body fat standard to assess body composition. The percent body fat value is determined from circumference measurements. Measuring body circumferences are more accurate than using height/weight tables since these tables fail to take into account skeletal frame size and muscle development.

2) **DO NOT BOUNCE** when stretching. Bouncing initiates the stretch reflex, causing muscles to tighten rather than relax. It also increases the chance of injury to muscles and joints.

You can recover faster from any sustained physical activity by continuing to participate in some type of low-intensity exercise such as walking. This helps prevent pooling of blood in the legs. The contractions of the legs during walking will help return blood to the heart. Cool-down exercises also help to prevent muscle soreness that may follow infrequent physical activity. Exercises contained in ***APPENDIX A*** may be used for this purpose.

CARDIORESPIRATORY EXERCISE

Once you have finished the warm-up, it is time for cardiorespiratory exercise. Cardiorespiratory exercise stimulates the heart and lungs and improves the body's use of oxygen. These exercises should be:

Vigorous – raising the heart rate to approximately 60-75% of maximum (***APPENDIX C***).

Sustained – performed for at least 30 minutes without interruption.

Regular – repeated three or more times per week.

To produce a cardiorespiratory training effect, it is important to increase your heart rate to a critical intensity. This intensity is frequently referred to as the target heart rate. To determine your approximate target heart rate zone use the table provided in ***APPENDIX C***. This table gives target heart rates for 60% to 75% of maximum for different age categories. Be sure to take your heart rate as soon as you stop exercising, before the rate decreases. This is best taken at the radial artery on your wrist. At the wrist, place all four fingers (not your thumb) on the palm side of the wrist, on the thumb side of the two large tendons there. The pulsations you feel result from the heart's beating and transporting blood through the arteries. The first pulsation you feel when you start timing should be counted as zero. Then continue counting the pulse beats for 10 seconds. Multiply this value by 6 to determine beats per minute.

CARDIORESPIRATORY FITNESS PROGRAMS

The following exercises use large muscles groups which will help you achieve your target heart rate.

RUNNING

Jogging and running are commonly used types of aerobic activity. Full body weight is supported and lifted during jogging which is associated with increased incidence of leg injuries. Proper running form, surface considerations, footwear and stretching are keys to comfortable exercising and preventing injury during jogging. A sample running program for men and women may be found in ***APPENDIX D***.

Basic Physical Readiness Program Design

The FITT principle should be used for the most effective development of flexibility, cardiorespiratory or musculoskeletal fitness. There are four components to the FITT principle:

(F) ***Frequency*** – How often you should exercise each week.

(I) ***Intensity*** – How hard you should exercise each session.

(T) ***Time To Exercise*** – How long you should exercise each session.

(T) ***Type of Exercise*** – What exercises you should perform.

A well-designed exercise program should be divided into four major components:

1) Warm-up

2) Cardiorespiratory exercise

3) Musculoskeletal exercise

4) Cool-down

WARM-UP/ COOL-DOWN

Always warm-up before any strenuous workout to increase both the temperature of your muscles and your heart rate. This prepares your body for the increased stress of physical exercise. When you properly prepare your muscles, tendons, ligaments and heart for a workout; exercise is more efficient and the potential for injury is reduced.

Once you have walked, jogged in place, or performed calisthenic exercises like jumping jacks for 2-3 minutes; it is time to stretch. The static stretching exercises contained in ***APPENDIX A*** will increase the range of motion of the major muscle groups listed in ***APPENDIX B.***

Two important points should be emphasized when performing stretching exercises.

1) Stretch to the point of tightness and hold that position for 15-30 seconds.

Running Form

Running posture should be comfortable and efficient. An erect posture with a slight forward lean is less tiring then a slouched posture with head down and shoulders drooping. The head should be held up with eyes focused 10 to 20 yards ahead. For smooth, efficient movement, rhythmic arm and shoulder action is necessary. Hands, arms, and shoulders should be relaxed. Legs should swing freely and naturally from the hips without exaggerated lifting of the knees and feet. During the recovery phase of the leg action, as the rear foot lifts off the ground and starts forward, it should pass directly beneath the knee. Avoid rotating the leg outward at the hip. During the driving phase of the leg action, as the lead foot strikes the ground, toes should be pointed forward or slightly inward. The preferred foot-landing technique is heel to ball of the foot in a rocking motion.

Running Surface

When running on roads take all safety precautions that apply to a pedestrian. Run towards traffic whenever possible. If running at night, wear reflective gear. Vary the surfaces that you run on (asphalt, grass, concrete, etc). Constant exercise on hard surfaces may cause stress to the lower extremities.

Proper Clothing

Serious problems can arise if you allow your body to overheat. Perspiring is the way the body prevents overheating. Evaporation of perspiration cools the skin and helps control body temperature. Covering the body retards this cooling effect. Do not wear plastic or rubber sweatsuits. They do not allow body heat to escape and the temperature of the body continues to rise. Several deaths have been attributed to wearing rubber and plastic sweatsuits. Clothes need to fit loosely. They should not bind or restrict your motions.

Proper Footwear

A quality shoe is the most important piece of equipment you need to buy for jogging. Expect to pay between $40 — $120 for a good shoe. Deciding on which shoe to buy can be frustrating. A reputable sporting goods store should be a good source of assistance. A knowledgeable salesperson should be able to provide advice on all the latest shoe models. If you have a special problem a podiatrist (foot doctor) should be consulted. The shoes ability to protect you from injury decreases as their mileage increases. You should record your daily mileage and replace them every 500—700 miles even if there is no significant visible wear.

The importance of selecting a good shoe for running cannot be overemphasized. In the course of running one mile, one foot collides with

the ground approximately 600 times. Doubling this figure for both feet equals 1200 collisions with the ground. If this is multiplied by 2.5 times the body weight for each impact, a 160 lb individual would absorb 480,000 pounds of force over one mile. Your feet deserve the best protection you can give them!

WALKING Walking is one of the fastest growing fitness activities. Although it is a weight-bearing activity, the impact on the legs is not as great as in jogging. Sedentary, obese and older individuals may find walking the ideal exercise. These members can use walking as a way to improve their cardiorespiratory fitness. However, as an individual's fitness level increases, the target heart rate will be more difficult to achieve by walking. One method of increasing the exercise intensity during walking is to use hand or wrist weights. However, the use of hand or wrist weights may cause changes in stride length. These changes may result in injury or muscle soreness.

Another method of increasing the exercise intensity while walking is by exaggerating the arm swing. This increases the involvement of the upper body muscles and helps to burn additional calories. A sample walking program for men and women may be found in ***APPENDIX E.***

SWIMMING During swimming the body is supported by water so the risk of joint and muscle injury is very low. Swimming is an excellent mode of exercise for those Navy members unable to jog because of orthopedic problems. In general, it is best to use both arms and legs together during a swimming workout to achieve the deserved training benefit. A recommended swimming program for men and women may be found in ***APPENDIX F.***

CYCLING Cycling can be an effective form of aerobic conditioning. Joint and muscle trauma are much less than in weight-bearing exercises like jogging. As in all aerobic exercise, it is important that the age adjusted target heartrate be maintained for at least 25-30 minutes. Most stationary cycles provide easily adjustable workloads, and thus the heart rate can be controlled within a narrow target zone. A cycling program for males and females may be found in ***APPENDIX G.***

ROWING Like cycling, rowing is a non-weight bearing exercise and therefore easier on muscles and joints. Rowing stresses the use of the upper torso and arms although the legs are also utilized. The resistance on the arms should be relatively low and leg exercise should be emphasized for an optimal aerobic training effect. A wide variety of rowing machines are available on the market. For safety purposes, the specific recommendations of the manufacturer should be followed.

CROSS-COUNTRY SKIING The cardiovascular benefits of cross-country skiing have been well documented. Energy expenditure during skiing is generally greater than other types of aerobic exercise since both legs and arms are used. Again, the manufacturer's suggested exercise techniques should be followed closely.

STAIR/VERTICAL CLIMBING Walking and running stairs have been a popular method of aerobic training. Recently, equipment manufacturers have developed stepping devices for the legs such as Stairmaster. In addition, other climbing devices such as the Versa-climber have been developed that utilize the arms. The resistance is adjustable for both the legs and arms. In addition to aerobic development, climbing may also be used to strengthen the upper and lower body. By increasing the resistance and repetition rates on this device, the energy expenditure can be increased greatly. Because of the large muscle mass involvement, it is recommended that heart rate be monitored on these mechanical climbers and stairs.

MUSCULOSKELETAL EXERCISE

A number of factors influence the development of musculoskeletal fitness. These include:

Range of Motion

When performing weight training each exercise should be performed through the complete movement capability of the joint.

Resistance

When performing weight training the resistance should be sufficient to challenge the muscles for the desired number of repetitions. Exercise that places an overload on muscles helps to strengthen them. Added resistance is necessary for continued strength gains as muscles adapt to the initial overload. Muscles adapt to this added stress by increasing the size of individual muscle fibers. This results in added muscle mass. Women can expect to improve muscular strength, without the increased muscle mass experienced by men, due to a lower level of the hormone testosterone.

Repetitions

In general, a low number of repetitions (1-6) results in increased size and strength while a high number of repetitions (12-20) improves muscular endurance. Performing 2-3 sets of repetitions is recommended for optimal results.

Recovery

Research indicates that for maximal strength gains a muscle must be exercised every 48-96 hours. Therefore working out 2-3 times per week is adequate. Daily workouts do not provide adequate recovery.

STRENGTH CONDITIONING PROGRAMS

UNIVERSAL EQUIPMENT Some Universal exercise stations alter resistance throughout the range of motion. An advantage of multi-station Universal equipment is that it can be used to set up circuit weight training programs like the SPARTEN program (***APPENDIX H***). Circuit weight training programs are effective onboard ship where space is limited.

NAUTILUS EQUIPMENT Nautilus offers a wide variety of single station machines to condition all of the major muscle groups. During exercise, resistance is altered during the lift by changing the resistance arm with a specialized cam. Nautilus equipment can be used to construct circuit weight training programs following general manufacturer's guidelines.

HYDRA-FITNESS This equipment uses hydraulic fluid in cylinders to provide positive resistance. Each exercise accommodates to the force produced by the muscles during the range of motion regardless of the speed of movement.

FREE-WEIGHTS Strength training is generally performed using free-weights or traditional weight machines. Both free-weights and machines effectively overload muscles and increase strength and muscle size. However, greater skill is required for using free-weights than machines. Additionally, the risk of injury is greater using free-weights because of the potential for dropping the weight. The use of free-weights is recommended only for experienced lifters and when assistance is available. An example of a free-weight exercise routine is provided in ***APPENDIX I.***

PARTNER-RESISTED EXERCISES When strength training equipment is not available partner-resisted exercises can be used to increase or maintain strength and flexibility. Partner-resisted exercise is a form of strength training in which an individual exercises against a partner's opposing resistance. Partner-resisted exercises outlined in ***APPENDIX J*** serve this purpose.

Special Considerations for PRT Failures and Overfat/Obese Members

1.5 MILE RUN/WALK FAILURE

Members unable to pass the 1.5 mile run/walk test must be placed on a aerobic exercise program. The type of the activity can vary (e.g., walking, jogging, swimming, cycling, (***APPENDICES D-G***)) but the four components of the FITT principle must be adhered to. It is important to start slowly and gradually improve your fitness in preparation for testing.

CURL-UP/PUSH-UP FAILURE

Members who do not pass the curl-up/push-up test need to start a muscular fitness program based on the overload principle. Muscles must be stressed to a greater degree in order for the muscle to adapt and grow stronger. The most efficient way to improve push-up or curl-up performance is to have members perform modified curl-back or let-down exercises outlined in ***APPENDIX K***.

SIT-REACH FAILURE

The most effective means of improving sit-reach ability is to increase hamstring and lower back flexibility. Flexibility exercises contained in ***APPENDIX L*** should be used to attain and maintain standards.

OVERFAT/OBESE MEMBERS

It is important to realize that decreasing caloric intake without exercising will result in weight loss, but some of that weight may be from muscle and not just fat. Increasing physical activity in order to burn more calories without decreasing calorie intake will result in weight loss but usually at a slow rate.

The most effective approach for long-term weight loss is a combination of a nutritious, low-calorie diet and regular exercise. However, the total caloric intake should be no less than 1500 calories for men and 1200 calories for women. Exercise has the advantage of increasing muscle mass and decreasing fat mass, thus helping to maintain desirable body weight.

Aerobic exercise programs outlined in ***APPENDICES D-G*** are excellent for body fat reduction. Swimming, walking, and cycling are more appropriate for obese members than jogging because these exercises produce less joint and muscle trauma. Regular participation in these programs is essential for optimal reductions

in body fat to occur. A personal exercise log that can be used to document compliance to a variety of exercise programs can be found in ***APPENDIX M***.

The Navy Nutrition/Weight Control Guide provides sound nutritional advice concerning safe weight loss. It should be used in conjunction with exercises contained in this manual for an effective weight loss program.

Injury Prevention

OVERUSE INJURIES

Regular aerobic exercise reduces the likelihood of heart attack. It also helps to control excess fat and assists in the management of many medical problems such as diabetes, high blood pressure and low back pain. Despite these benefits the potential for injury exists for whatever type of exercise you perform. Maintaining a good level of fitness is one way to prevent injuries. To develop and maintain fitness it is important to train, not strain. You should feel good during and after exercise. Ignoring minor aches and pains can lead to serious injuries. There are several key warning signals of potential serious injury. These include prolonged:

- Mild leg soreness
- Localized pain
- Swelling
- Joint stiffness
- Increase in resting heart rate
- Lowered resistance to infection
- Fatigue

Overuse injuries are most prevalent among runners. Injuries often occur as a result of running too long, too fast, or a combination of the two. The following are contributing factors to almost all injuries:

- Increase in exercise frequency, intensity or time
- Change in surface
- Training on exhausted muscles
- Change in, or poorly fitting shoes
- Not performing stretching exercises
- Ignoring injury warning signals

If you run 50 miles per week you have almost twice the likelihood of injury as someone running 25 miles per week. Running every day also predisposes you to more injuries. Increase mileage and intensity gradually. Mileage should increase only by 5 percent per week.

Allow plenty of recovery time after hard workouts or races. Few runners can work hard more than 3 days a week. Spread these days out over the full week and relax between them.

HEAT-STRESS INJURIES occur when the the body's ability to control internal body temperature is reduced. Even a well-conditioned sailor can suffer heat exhaustion if unable to dissipate excess heat and replace needed fluids. Factors that influence exercising in the heat include the relative humidity, air movement, heat absorption from the sun and the amount of time the individual has had to become acclimatized to the heat. To help prevent heat related injuries, members should drink as much water as possible before, during or after exercising in the heat. Salt tablets should not be ingested as they only upset the body's electrolyte balance. The following information briefly describes symptoms, cause and treatment of a number of heat related injuries.

Heat Cramps

are the result of hard work in the heat. Heavy sweating is associated with heat cramps. Symptoms include muscular twitching or cramping and muscular spasms in the arms, legs and abdomen.

Heat Stress

may follow or occur in conjunction with heat cramps. It results from adjustments made in the circulatory system, especially the blood vessels close to the skin, to keep internal body temperature down. Symptoms include fatigue, pale skin, blurred vision, low blood pressure and dizziness. Heat stress left untreated can progress to heat exhaustion.

Heat Exhaustion

occurs when heat stress is left untreated. It is caused by prolonged sweating with inadequate fluid replacement. Symptoms are excessive thirst, fatigue, lack of coordination, increased sweating, cool/wet skin and abnormally high internal body temperature.

For all of these heat injuries, the member should be moved immediately to a cool place and given plenty of water. Exercise should not be resumed until all symptoms have ceased. In the case of heat exhaustion medical attention is necessary.

Heat Stroke

is a medical emergency because it is life threatening. The cause of heatstroke is a breakdown of the body's cooling mechanism. Symptoms may include cessation of sweating, hot/dry skin, high internal body temperature (above 105 F), rapid pulse, rapid breathing, coma and seizures.

Treatment of heatstroke involves cooling the body by moving the individual to a cooler location. The victim should be sponged with cool water applying ice to the armpits, groin and back of the neck. The victim should not be immersed in cold water because this may cause shock. Urgent medical attention is required.

COLD-STRESS INJURIES are the result of a gradual cooling of the body's core. This may occur at temperatures above as well as below freezing. These injuries usually occur in wet, windy weather. Symptoms vary as the body temperature falls and the condition becomes more severe. The first symptom noted is severe shivering. As the temperature continues to drop, the victim becomes uncoordinated, is unable to speak properly and has difficulty completing small tasks. If the temperature drops further, these symptoms become more severe and can lead to coma and even death.

To help prevent cold-stress injuries dress in several layers of light material clothing. Place cotton closest to your skin, then wool, and then a nylon mesh training suit which is wind and water resistant. Wear a wool vest or sweater, wool socks, wool hat and wool mittens. Wool provides warmth even when wet. Don't overdress to prevent excessive sweating and lose of heat.

Hypothermia

is a medical emergency that requires treatment at a medical facility. The basic principles of first aid are to prevent further heat loss, move the victim to a warm place, cover with blankets and seek medical attention as soon as possible. All wet clothing should be removed and replaced with dry clothing. If the victim is conscious administer warm liquids (no alcohol).

Educational and Assistance Resources

This guide provides information about improving physical fitness and offers a variety of exercise programs that may be used as a part of the command directed physical conditioning program. Command Fitness Coordinators may want to use additional resources to better educate and motivate command personnel. ***APPENDIX N*** contains Navy and civilian publications and videos that can be used for this purpose. ***APPENDIX O*** lists Navy and civilian organizations that may be helpful in assisting you establish a successful program.

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Appendix A
Warm-Up/Cool-Down

WARM-UP No matter how fit you are, your body needs to be warmed up for peak performance. Always warm-up with a minute or two of walking before stretching, aerobic conditioning or weight conditioning workouts. Just a few minutes of stretching and calisthenics (running in place, jumping jacks, etc.) before your exercise session will help prevent injuries.

The stretches listed below will get you ready to exercise, improve your flexibility, and help prevent low back pain.

W alk for a minute or two before starting

A lways do your stretches and calisthenics

R elax while warming-up; heavy activity comes later

M ove smoothly – don't bounce

1. WARM-UP WALK:
Walk 2 minutes to warm-up before stretching.

2. HIP FLEXOR STRETCH:
Hold 15 – 30 seconds.
Do 2 reps each leg

3. SIT-REACH STRETCH:
Hold 15 – 30 seconds.
Do 2 reps.

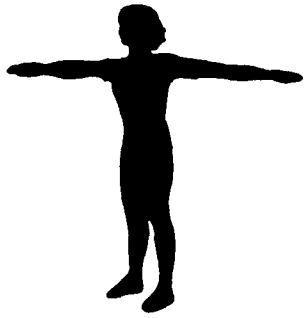
4. GROIN STRETCH:
Hold 15 – 30 seconds.
Do 2 reps.

5. QUADRICEPS STRETCH:
Hold 15 – 30 seconds.
Do 2 reps each leg.

6. LOWER BACK STRETCH:
Hold 15 – 30 seconds.
Do 2 reps each leg.

7. ACHILLES TENDON AND CALF STRETCH:
Hold 15 – 30 seconds.
Do 2 reps each leg.

8. ARM CIRCLES:
Do 10 rotations forward.
Do 10 rotations backward.



9. SIDE STRETCH:
Hold 15 – 30 seconds.
Do 2 reps for each side.

COOL-DOWN After exercising, always take 2 to 3 minutes to cool-down. Don't sit down or head directly for the shower: If you do, you might get cramps or lightheaded.

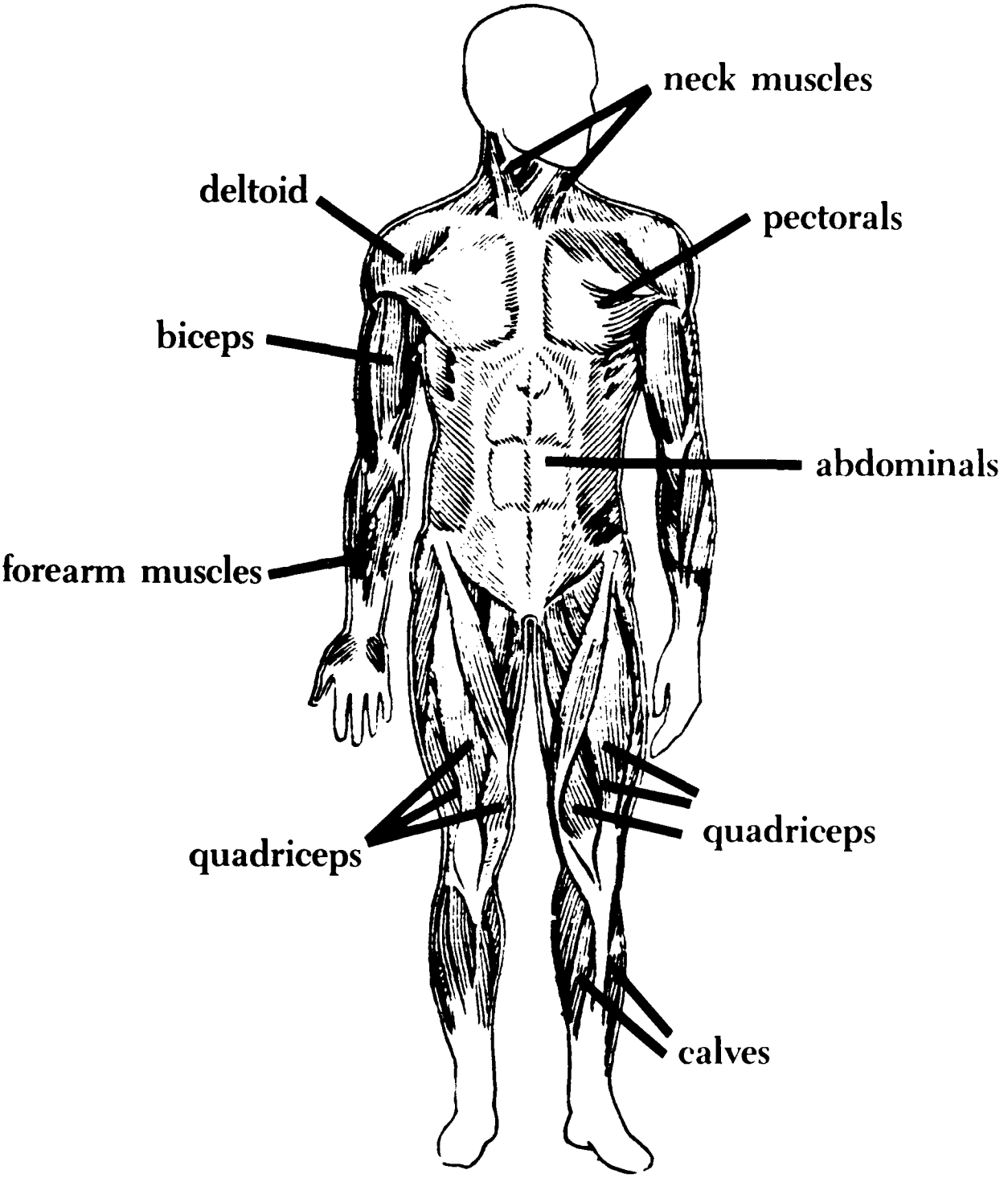
Calm your heart rate back to normal

Oxygenate your muscles by ending with a slow walk

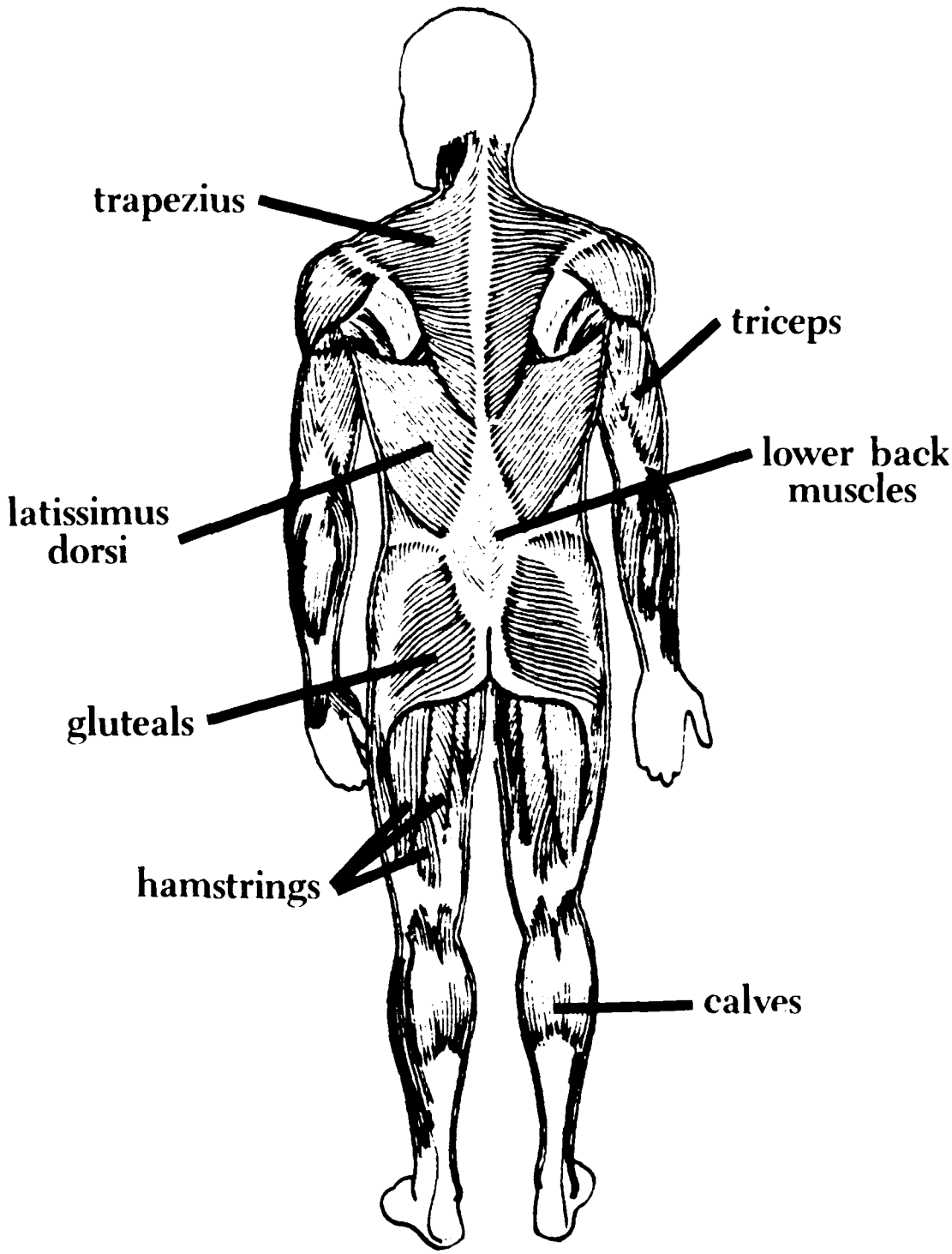
On finishing, repeat the stretches listed above

Let your breathing return to normal

Appendix B
Location of Major Muscle Groups
(ANTERIOR)



Appendix B
Location of Major Muscle Groups
(POSTERIOR)



Appendix C
Aerobic Conditioning

PICK YOUR CHALLENGE There are lots of physical activities which, if performed continuously for 30 minutes, will condition your body aerobically. Aerobic type exercise challenges your heart and lungs, boosts your mind and spirits (reducing your stress), and burns calories and fat, too! To reap the benefits, you must exercise at your target heart rate zone, at least three times a week.

Use the guide below to choose one or more activities that you enjoy and will stick to—Don't be an exercise drop-out. An exercise partner can help keep you motivated, too!

Fitness Walking

If you like ease and convenience get in step with America's new favorite exercise. When done at a brisk pace, it can improve aerobic fitness.

Jogging/Running

If you like to be fast on your feet, jogging or running is for you. Great cardiovascular exercise which builds aerobic endurance.

Swimming

If you like water, but not sweat, dive in. Overall body conditioner that builds strength and endurance. A good choice for people with leg or back injuries.

Bicycling

If you like wheels and speed, biking might be your chosen path. Biking indoors or out vigorously builds leg muscles and increases cardiovascular endurance.

Aerobic Dance

If music gets you moving, try aerobic dance (i.e. low-impact, jazzercise, etc.). Great for your cardiovascular system and can strengthen some muscle groups too! Classes are offered at most recreation facilities and aboard some ships.

Rowing

If you like a good challenge, rowing is for you. An excellent overall body conditioner that builds strength and endurance. Try out the rowing machine in your ship, sub, or base fitness facility.

Other Aerobic Activities

Stair Climbing, Rope Skipping, Cross-Country Skiing, and Skating (ice, or roller) are all excellent choices too!!

TARGET HEART RATE ZONE

Your heart's smart about exercise. Your heart rate tells you whether or not you're challenging your body at the right level. 60% to 75% of your maximum heart rate is your Target Heart Rate Zone. If you're just starting a program, start at the 60% level and work up. To improve your aerobic condition you must increase your frequency of activity, length of work-out, and/or intensity (pace). Use the guide below to pick your best work-out pace.

(Count your heart rate by feeling your pulse at your wrist and count the beats for 10 seconds.)

Age (Years)	*Target Heart Rate Zone (Beats Per Minute)*	*10-Second Target Heart Rate Zone (Beats)*
20	120 – 150	20 – 25
25	117 – 146	19 – 24
30	114 – 142	19 – 23
35	111 – 138	18 – 23
40	108 – 135	18 – 22
45	105 – 131	17 – 22
50	102 – 127	17 – 21
55	99 – 123	16 – 21
60	96 – 120	16 – 20
65	93 – 116	15 – 19
70	90 – 113	15 – 19

Warning

Don't overdo it, build-up slowly and avoid consecutive days of hard work-outs. If your are obese, have high blood pressure, any other heart or circulatory condition, or are over age 40, get approval from your physician before starting.

WORK-OUT TIPS

Warm-Up and Cool-Down

Don't forget to do 1 – 2 minutes of walking followed by stretching exercises before starting and following your work-out. (See Warm-Up/ Cool-Down Tips.)

Water

Drink before, during and after exercise. . . expecially in hot weather; your body needs it to perform.

Weather

When it is extreme, exercise indoors, or early or later in the day. Extreme weather (check humidity or wind-chill) is hard on the heart and muscles. Dress appropriately for any weather condition.

Appendix D
Running Exercise Program (Men)

(UNDER 30 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	13:30	5
2	1.0	13:00	5
3	1.0	12:45	5
4	1.0	11:45	5
5	1.0	11:00	5
6	1.0	10:30	5
7	1.5	17:30	5
8	1.5	16:30	4
9	1.0	9:30	3
	1.5	15:30	2
10	1.0	8:45	3
	1.5	14:15	2
11	1.0	8:15	2
	1.5	13:00	3
12	1.0	7:45	2
	1.5	12:30	2
	2.0	18:00	1
13	1.5	11:55	2
	2.0	17:00	2
14 and greater	2.0	16:00 – 19:59	4

(30 – 39 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	17:30	5
2	1.0	15:30	5
3	1.0	14:15	5
4	1.0	13:30	5
5	1.0	11:45	5
6	1.0	11:15	5
7	1.5	13:30	5
8	1.5	17:00	4
9	1.0	10:00	3
	1.5	15:45	2
10	1.0	9:15	3
	1.5	14:30	2
11	1.0	8:45	2
	1.5	13:00	3
12	1.0	8:15	3
	2.0	19:30	2
13	1.0	8:00	1
	1.5	12:25	2
	2.0	18:30	2
14 and greater	2.0	16:00 – 19:59	4

(40 – 49 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	18:00	5
2	1.0	16:00	5
3	1.0	15:00	5
4	1.0	14:15	5
5	1.0	13:45	5
6	1.0	12:45	5
7	1.5	19:30	5
8	1.5	18:00	5
9	1.0	10:45	3
	1.5	17:00	2
10	1.0	10:00	1
	1.5	15:45	4
11	1.0	9:30	2
	1.5	14:30	3
12	1.0	9:00	1
	2.0	20:30	4
13	1.0	8:30	1
	1.5	13:25	2
	2.0	19:30	2
14	2.0	16:00 – 19:59	4

(AGE 50 AND OVER)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	18:30	5
2	1.0	17:00	5
3	1.0	16:00	5
4	1.0	15:00	5
5	1.0	14:15	5
6	1.0	13:45	5
7	1.5	20:30	5
8	1.5	19:00	5
9	1.0	11:30	2
	1.5	17:45	3
10	1.0	10:45	1
	1.5	16:45	4
11	1.0	10:15	2
	1.5	22:00	3
12	1.0	9:45	2
	2.0	21:00	3
13	1.0	9:30	1
	1.5	14:25	2
	2.0	19:55	2
14	2.0	16:00 – 19:59	4

Running Exercise Program (Women)

(UNDER 30 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	17:00	5
2	1.0	15:00	5
3	1.5	23:00	5
4	1.5	21:00	5
5	1.0	10:30	5
6	1.5	19:00	5
7	1.5	18:00	5
8	2.0	24:00	5
9	1.5	14:30	4
10 and greater	1.5	13:30	4

NOTE: First 4 weeks are walking only.

(30 – 39 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	18:30	5
2	1.0	16:30	5
3	1.0	15:30	5
4	1.5	24:00	5
5	1.5	22:00	5
6	1.0	12:00	5
7	1.5	20:00	5
8	1.5	18:00	5
9	2.0	25:00	5
10	2.0	24:00	5
11	1.5	16:00	5
12 and greater	1.5	14:00	4

NOTE: First 5 weeks walking only.

(40 – 49 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	19:00	5
2	1.0	17:30	5
3	1.0	16:00	5
4	1.5	25:00	5
5	1.5	23:00	5
6	2.0	31:00	5
7	1.0	12:30	5
8	1.5	20:30	5
9	1.5	19:00	5
10	2.0	26:00	5
11	2.0	24:00	5
12	1.5	17:00	5
13	1.5	15:30	5
14	1.5	14.30	4

NOTE: First 6 weeks are walking only.

(AGE 50 AND OLDER)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	20:00	5
2	1.0	18:00	5
3	1.0	17:00	5
4	1.0	16:00	5
5	1.5	26:00	5
6	1.5	24:00	5
7	1.5	23:00	5
8	2.0	32:00	5
9	1.0	13:00	5
10	1.5	20:00	5
11	1.5	18:00	5
12	2.0	28:00	5
13	2.0	26:00	5
14	1.5	17:30	5
15	1.5	17:00	5
16	1.5	16:30	5

NOTE: First 8 weeks are walking only.

Appendix E
Walking Exercise Program (Men)

(UNDER 30 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	15:00	5
2	1.0	14:00	5
3	1.0	13:45	5
4	1.5	21:30	5
5	1.5	21:00	5
6	1.5	20:30	5
7	2.0	27:30	5
8	2.0	27:30	3
	2.5	33:45	2
9	2.0	27:30	3
	2.5	33:30	2
10	2.5	33:15	3
	3.0	41:15	2
11	2.5	33:00	3
	3.0	40:00	2
12	3.0	41:00	5
13	4.0	55:00	3
14 and greater	4.0	58:00 – 79:59	5

(30 – 39 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	17:30	5
2	1.0	15:30	5
3	1.0	14:15	5
4	1.0	14:00	5
5	1.5	21:40	5
6	1.5	21:15	5
7	2.0	28:30	5
8	2.0	28:00	5
9	2.0	28:00	3
	2.5	35:30	2
10	2.5	34:45	3
	3.0	43:00	2
11	2.5	34:30	3
	3.0	42:30	2
12	3.0	42:30	5
13	4.0	56:30	3
14 and greater	4.0	58:00 – 79:59	5

(40 – 49 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	18:00	5
2	1.0	16:00	5
3	1.5	24:00	5
4	1.5	22:30	5
5	2.0	31:00	5
6	2.0	30:00	5
7	2.0	29:30	3
	2.5	36:00	2
8	1.5	21:30	3
	2.5	35:30	2
9	2.0	28:00	3
	2.5	36:00	2
10	2.0	28:00	2
	3.0	43:00	3
11	2.5	34:45	3
	3.0	42:45	2
12	3.0	42:45	5
13	4.0	56:45	3
14	4.0	58:00 – 79:59	5

(AGE 50 AND OVER)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	18:30	5
2	1.0	16:30	5
3	1.0	15:00	5
4	1.5	24:30	5
5	1.5	23:00	5
6	1.5	22:30	5
7	2.5	38:30	5
8	2.0	28:45	2
	2.5	37:30	3
9	2.0	28:30	3
	2.5	37:00	2
10	2.0	28:00	2
	3.0	43:15	3
11	2.5	35:00	3
	3.0	43:00	2
12	3.0	43:00	5
13	4.0	57:00	3
14	4.0	58:00 – 79:59	5

Walking Exercise Program (Women)

(UNDER 30 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	18:00	5
2	1.0	16:00	5
3	1.5	25:00	5
4	1.5	23:00	5
5	1.0	13:45	5
6	2.0	29:30	5
7	1.5	21:30	5
8	2.0	28:30	5
9	2.0	27:30	5
10 and greater	2.5	35:00	5

(30 – 39 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	19:00	5
2	1.0	17:00	5
3	1.0	15:30	5
4	1.5	26:00	5
5	1.5	23:30	5
6	1.0	14:15	5
7	2.0	31:00	5
8	2.0	30:00	5
9	1.5	21:30	5
10	2.0	28:45	5
11	2.0	28:00	5
12	2.5	35:30	5

(40 – 49 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	1.0	20:00	5
2	1.0	18:00	5
3	1.0	16:00	5
4	1.0	15:00	5
5	1.5	27:00	5
6	1.5	26:00	5
7	1.5	25:00	5
8	1.0	14:25	5
9	2.0	33:00	5
10	2.0	32:00	5
11	1.5	21:40	5
12	2.0	28:50	5
13	2.0	28:30	5
14 and greater	2.5	36:00	5

(AGE 50 AND OVER)	Week	Distance (Miles)	Time (Min)	Frequency/Week
	1	.75	18:00	5
	2	1.0	25:00	5
	3	1.0	22:00	5
	4	1.0	20:00	5
	5	1.0	18:00	5
	6	1.5	28:00	5
	7	1.5	27:00	5
	8	1.5	26:00	5
	9	2.0	34:00	5
	10	2.0	33:00	5
	11	2.0	32:00	5
	12	2.5	40:00	5
	13	2.5	38:00	5
	14	3.0	46:00	5
	15	3.0	45:00	5
	16 and greater	3.0	43:15	5

Appendix F
Swimming Exercise Program (Men)

(UNDER 30 YEARS OF AGE)

Week	Distance (Yards)	Time (Min)	Frequency/Week
1	100	2:30	5
2	150	3:00	5
3	200	4:00	5
4	250	5:00	5
5	250	5:30	5
6	300	6:00	5
7	400	8:30	5
8	400	8:00	2
	500	10:30	3
9	400	8:00	2
	600	12:30	3
10	600	12:30	4
	800	16:30	1
11	600	12:30	3
	800	16:00	2
12	800	15:30	4
13	1,000	19:30	3
14 and greater	1,000	16:40 – 24:59	3

(30 – 39 YEARS OF AGE)

Week	Distance (Yards)	Time (Min)	Frequency/Week
1	100	2:30	5
2	150	3:00	5
3	175	3:45	5
4	200	4:00	5
5	250	5:15	5
6	250	5:00	5
7	400	8:30	5
8	400	8:00	5
9	400	8:00	2
	500	10:30	3
10	500	10:30	4
	700	15:00	4
11	600	12:00	1
	800	16:30	4
12	800	16:00	4
13	1,000	20:30	3
14 and greater	1,000	16:40 – 24:59	3

(40 – 49 YEARS OF AGE)

Week	Distance (Yards)	Time (Min)	Frequency/Week
1	100	2:30	5
2	150	3:15	5
3	175	4:00	5
4	200	4:30	5
5	200	4:15	5
6	250	5:30	5
7	300	6:15	5
8	400	9:00	5
9	400	8:30	5
10	400	9:00	2
	600	13:00	3
11	500	11:00	3
	700	15:30	2
12	700	15:00	5
13	800	16:30	4
14 and greater	1,000	16:40 – 24:59	3

(AGE 50 AND OVER)

Week	Distance (Yards)	Time (Min)	Frequency/Week
1	100	2:30	5
2	150	3:45	5
3	175	4:15	5
4	200	4:45	5
5	200	4:30	5
6	200	4:15	5
7	300	7:15	5
8	300	6:45	5
9	400	9:45	5
10	400	9:15	2
	600	13:45	3
11	500	11:30	2
	700	16:30	3
12	700	16:00	5
13	800	18:00	4
14 and greater	1,000	16:40 – 24:59	3

Swimming Exercise Program (Women)

(UNDER 30 YEARS OF AGE)

Week	Distance (Yards)	Time (Min)	Frequency/Week
1	100	3:00	5
2	150	3:45	5
3	200	5:00	5
4	200	4:30	5
5	250	5:30	5
6	300	7:00	5
7	400	8:30	5
8	500	11:00	5
9	550	12:00	5
10 and greater	600	13:00	5

(30 – 39 YEARS OF AGE)

Week	Distance (Yards)	Time (Min)	Frequency/Week
1	100	3:15	5
2	150	4:00	5
3	150	3:45	5
4	200	4:30	5
5	250	5:45	5
6	250	5:30	5
7	300	7:15	5
8	350	8:00	5
9	400	9:00	5
10	450	9:30	5
11	500	11:30	5
12 and greater	600	13:30	5

(40 – 49 YEARS OF AGE)

Week	Distance (Yards)	Time (Min)	Frequency/Week
1	100	3:30	4
2	100	3:15	5
3	150	4:30	5
4	150	4:00	5
5	200	5:15	5
6	250	6:00	5
7	300	7:15	5
8	300	7:00	5
9	350	8:15	5
10	400	9:30	5
11	450	10:00	5
12	500	11:45	5
13	550	12:15	5
14 and greater	600	14:00	5

(AGE 50 AND OVER)

Week	Distance (Yards)	Time (Min)	Frequency/Week
1	50	2:00	3
2	100	4:00	4
3	100	3:30	5
4	150	5:15	5
5	150	5:00	5
6	200	6:00	5
7	250	7:00	5
8	250	6:30	5
9	300	8:00	5
10	300	7:30	5
11	350	8:30	5
12	400	9:55	5
13	450	11:00	5
14	500	12:00	5
15	550	13:00	5
16	600	14:30	5

Appendix G
Cycling Exercise Program (Men)

(UNDER 30 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	2.0	10:00	5
2	2.0	9:00	5
3	2.0	7:45	5
4	3.0	11:50	5
5	3.0	11:00	5
6	3.0	10:30	5
7	4.0	14:30	5
8	4.0	14:00	4
	5.0	18:30	1
9	4.0	14:00	3
	5.0	18:00	2
10	4.0	13:30	3
	6.0	23:00	2
11	5.0	17:00	3
	6.0	22:00	2
12	6.0	21:00	5
13	8.0	28:30	3
14 and greater	8.0	24:00 – 31:59	3

(30 – 39 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	2.0	10:30	5
2	2.0	9:30	5
3	2.0	8:30	5
4	2.0	7:45	5
5	2.0	7:30	5
6	3.0	11:50	5
7	4.0	15:30	4
	5.0	19:45	1
8	4.0	15:00	3
	5.0	19:00	2
9	3.0	11:00	2
	6.0	23:45	3
10	3.0	10:30	2
	6.0	23:00	3
11	5.0	18:30	3
	6.0	22:30	2
12	6.0	22:00	5
13	8.0	29:30	3
14	8.0	24:00 – 31:59	3

(40 – 49 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	2.0	11:00	5
2	2.0	10:00	5
3	3.0	15:00	5
4	3.0	14.00	5
5	4.0	19:00	5
6	4.0	17:30	5
7	3.0	13:00	2
	4.0	15:45	3
8	3.0	11:45	1
	4.0	15:30	4
9	4.0	15:00	3
	5.0	19:45	2
10	3.0	11:00	2
	6.0	23:30	3
11	5.0	19:00	3
	6.0	23:15	2
12	6.0	23:00	5
13	8.0	31:30	3
14 and greater	8.0	24:00 – 31:59	3

(AGE 50 AND OVER)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	2.0	11:30	5
2	2.0	10:30	5
3	2.0	10:00	5
4	3.0	16:00	5
5	3.0	15:30	5
6	3.0	15:00	5
7	5.0	26:30	5
8	5.0	25:00	1
	6.0	32:00	4
9	5.0	25:00	3
	7.0	39:30	2
10	5.0	24:00	2
	8.0	42:00	3
11	8.0	40:00	3
	10.0	57:30	1
12	10.0	55:00	4
13	12.0	65:00	3
14 and greater	8.0	24:00 – 31:59	3

Cycling Exercise Program (Women)

(UNDER 30 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	2.0	12:30	5
2	2.0	11:00	5
3	2.0	9:45	5
4	3.0	16:00	5
5	3.0	14:30	5
6	4.0	20:00	5
7	5.0	25:00	5
8	6.0	30:00	5
9	7.0	35:00	4
10	8.0	40:00	4

(30 – 39 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	2.0	13:00	5
2	2.0	12:00	5
3	2.0	10:00	5
4	3.0	17:00	5
5	3.0	15:00	5
6	4.0	22:00	5
7	4.0	21:00	5
8	5.0	26:00	5
9	5.0	25:30	5
10	6.0	31:00	5
11	7.0	36:00	4
12	8.0	42:00	4

(40 – 49 YEARS OF AGE)

Week	Distance (Miles)	Time (Min)	Frequency/Week
1	2.0	13:30	5
2	2.0	12:30	5
3	2.0	10:30	5
4	3.0	17:30	5
5	3.0	15:30	5
6	4.0	23:30	5
7	4.0	22:00	5
8	5.0	27:00	5
9	5.0	26:00	5
10	6.0	33:00	5
11	6.0	32:00	5
12	7.0	38:00	4
13	7.0	37:00	4
14	8.0	44:00	4

(AGE 50 AND OVER)	Week	Distance (Miles)	Time (Min)	Frequency/Week
	1	2.0	14:00	5
	2	2.0	13:00	5
	3	2.0	11:00	5
	4	3.0	17:45	5
	5	3.0	16:00	5
	6	3.0	15:30	5
	7	4.0	23:45	5
	8	4.0	23:00	5
	9	5.0	28:00	5
	10	5.0	27:00	5
	11	6.0	34:00	5
	12	6.0	33:00	5
	13	7.0	40:00	4
	14	7.0	38:00	4
	15	8.0	47:00	4
	16	8.0	46:00	4

Appendix H
SPARTEN Circuit Weight Training

SPARTEN (SCIENTIFIC PROGRAM OF AEROBIC AND RESISTANCE TRAINING EXERCISE IN THE NAVY) is a total body fitness program designed by exercise physiologists from the Naval Health Research Center, San Diego, CA. Circuit weight training is ideal for use onborad ship where space and time restrictions are frequently encountered. The following exercise guidelines should be adhered to when performing circuit weight training.

Proper Breathing

Breathing during weight training should be synchronized with the exercise. The most efficient breathing pattern is to exhale during the first movement and inhale during the second movement.

Breath holding should never be done while weight training. On occasion, an inexperienced lifter holds his/her breath in order to "gut out" an extra repetition. More-often-than-not, this practice results in a decrease in the efficiency of the exercise. In addition, holding one's breath while training can also produce either dizziness or unconsciousness. This condition is the result of the Valsalva Phenomenon. This phenomenon results from a build-up of pressure in the chest cavity which compresses the right side of the heart and restricts the flow of blood and oxygen to the entire body. Some exercises bring on the symptoms of the Valsalva Phenomenon more readily than others (e.g., squat, seated or military press, deadlift, biceps curl, bench press).

Proper Strength Training Techniques

The rules for proper exercise can be stated very briefly.

1) Perform exercises using full range of motion to assure development of the entire length of the involved muscles and to increase flexibility.
2) Perform all exercises in a smooth, controlled manner at a moderate pace. Do not try to throw or jerk the weight up during the lifting phase.
3) Proper technique in lowering the weight is just as important as proper form when lifting the weight. During the lowering phase control the weight at all times. Do not let gravity do the work for you. The weights being lowered should not touch the remainder of the weight stack during the lowering phase.
4) The most important factor in strength development is how you perform the exercise. Push yourself to the point of muscular failure. The bottom line is, the greater the effort you put into each exercise, the greater your strength development will be!

Pull-Up

General Description

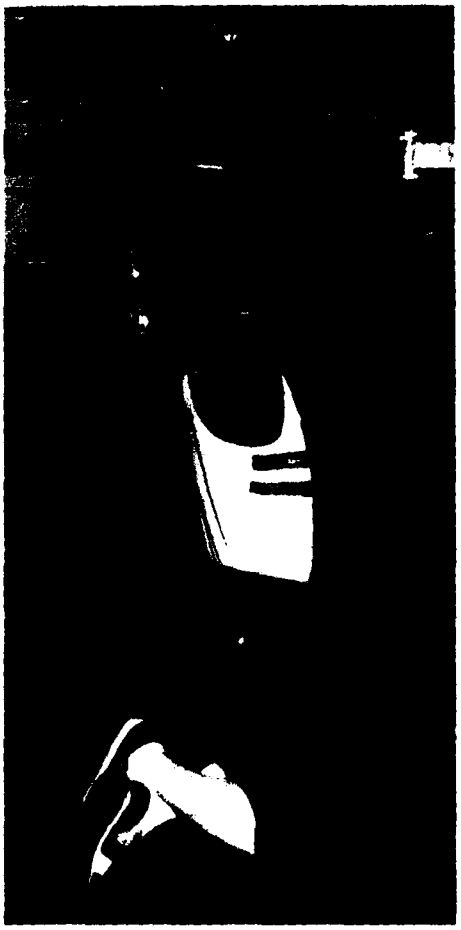
Hanging position, cross legs and bend knees. Pull-up chin above level of handles. Inhale. Lower to starting position.

Muscles Conditioned

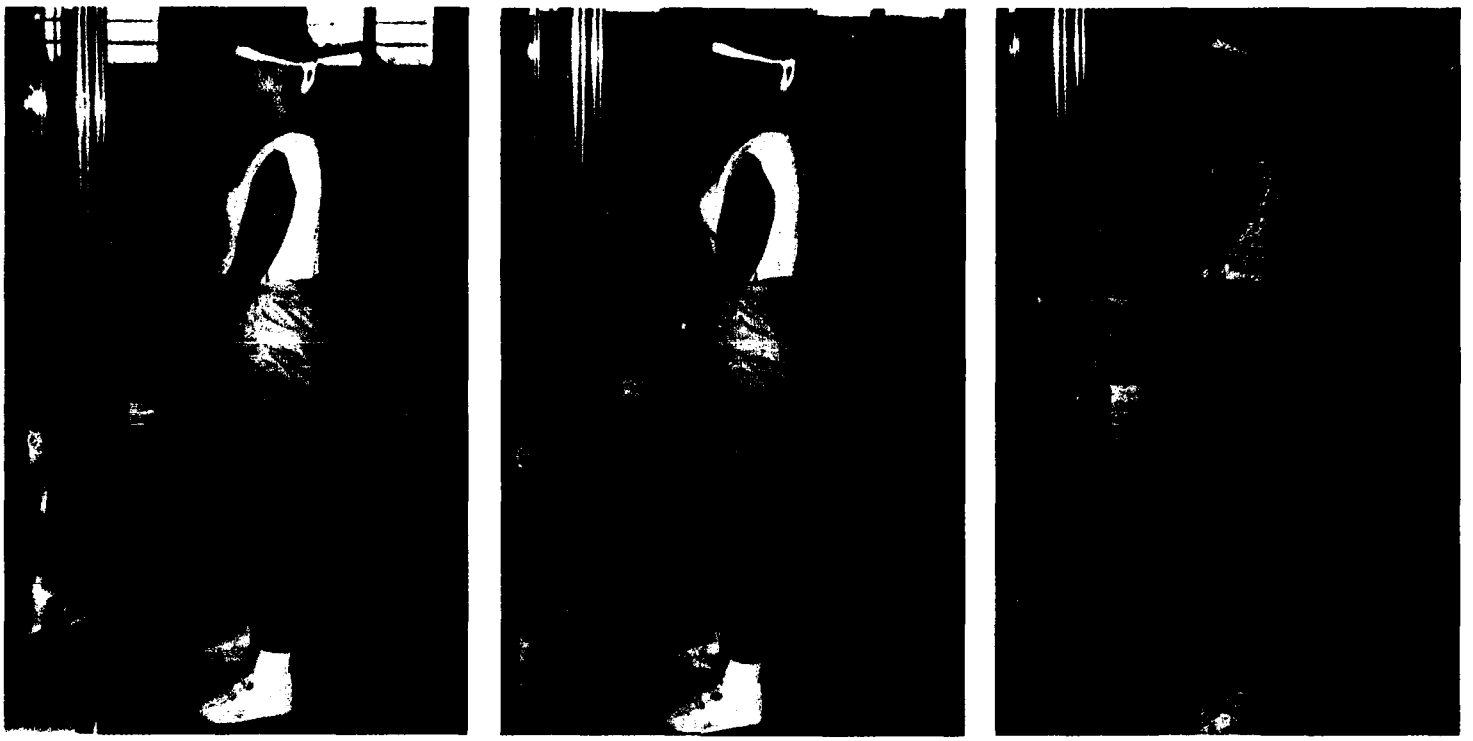
Biceps Latissimus dorsi

Training Recommendations

It is recommended that women hang from the chin handles and bring knees to chest.



Arm-Curl



General Description

Stand erect, body braced backyard. Grip bar at shoulder width. Exhale. Curl palms towards shoulders and bring bar in an arc towards chest. Inhale. Lower bar to starting position.

Muscles Conditioned

Biceps Forearms

Training Recommendations

Elbows should be positioned at side of body during this exercise.

Lat-Pulldown

General Description

Face machine, kneel directly under bar, hips forward, wide grip on bar. Exhale. Pull bar down to back of neck. Inhale. Straighten arms to starting position.

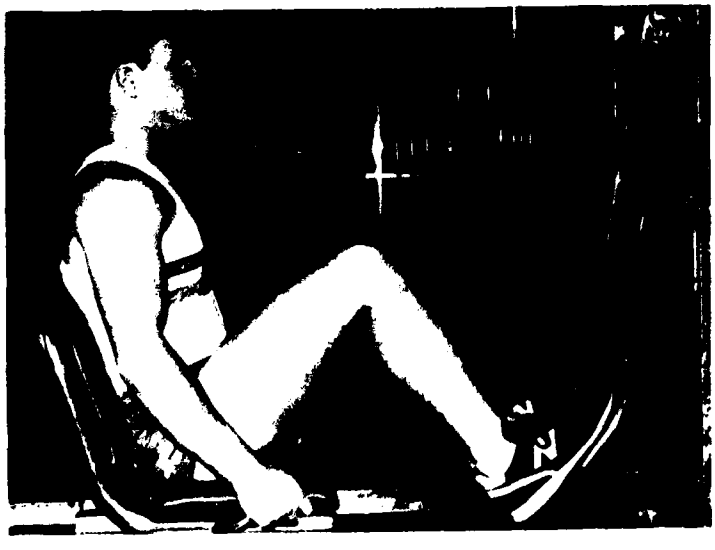
Muscles Conditioned

Latissimus dorsi Trapezius

Training Recommendations

When adjusting for proper lat bar height, place pin in slot from a kneeling position.

Leg Press



General Description

Sit erect with lower back against back of seat, legs flexed with feet against pedals, grasp hand grips. Exhale. Extend legs. Inhale. Return to starting position.

Muscles Conditioned

Gluteals Hamstringss

Training Recommendations

Do not allow legs to lock out during extension phase of lift. Seat should be adjusted to create a 90 degree angle at the knee joint.

Arm Dips

General Description

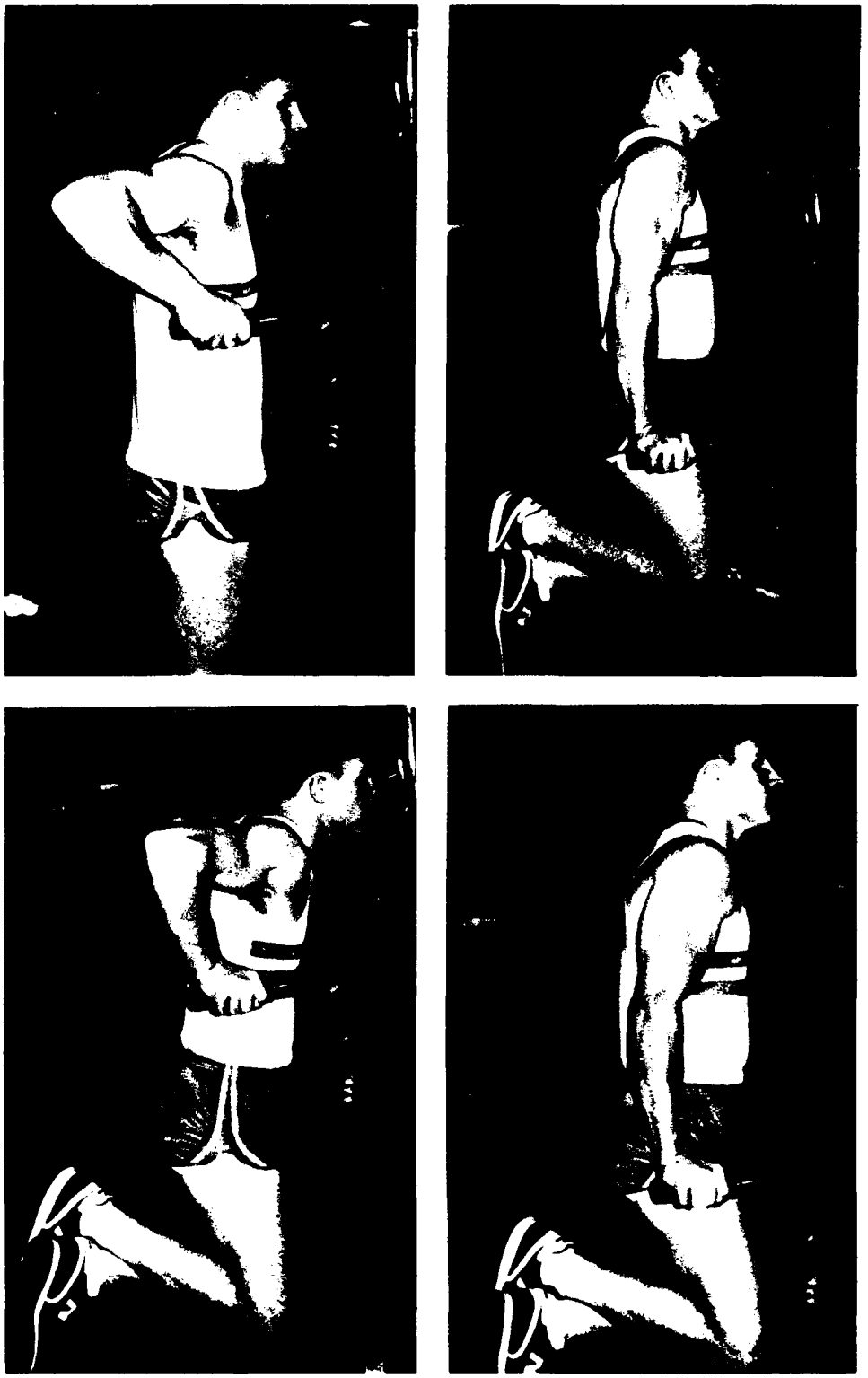
Face machine, grasp handles, jump to upright position, arms straight, cross feet, bend knees. Exhale. Bending arms at elbows, lower chest to bar. Inhale. Push back up to starting position.

Muscles Conditioned

Triceps Deltoids

Training Recommendations

Lower body as far as possible during this exercise.



Sit-Ups

General Description

Lie on back on incline board, hook feet under rollers, bend knees, hands folded across chest. Exhale. Curl up touching elbows to thighs. Inhale. Return to starting position.

Muscles Conditioned

Abdominals

Training Recommendations

Keep back straight during this exercise.

Bench Press

General Description

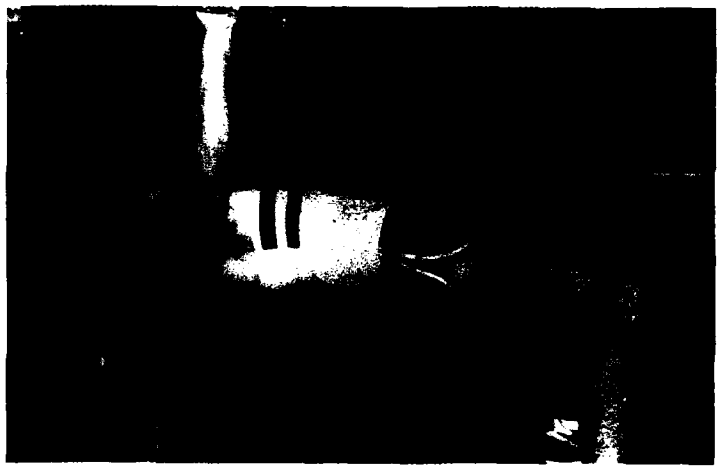
Lie with back on bench, feet on floor, grip bar at shoulder width. Exhale. Press weight up. Inhale. Lower bar to chest.

Muscles Conditioned

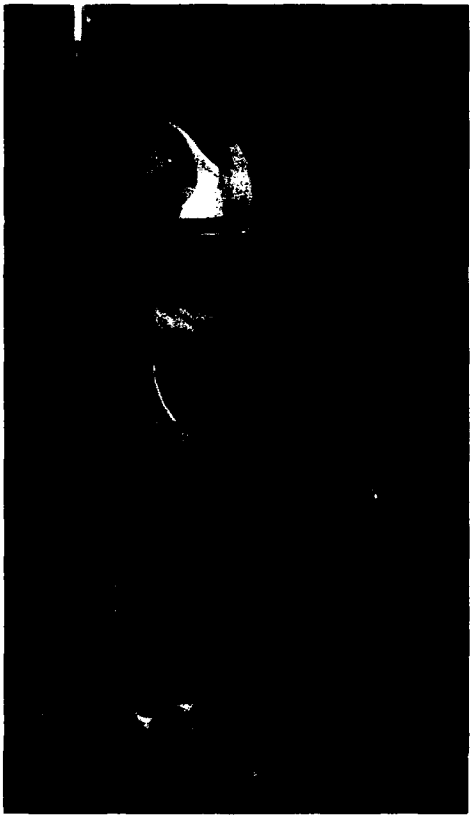
Pectorals Deltoids

Training Recommendations

Keep back back flat on bench during lifting phase of this exercise.



Hip Flexor



General Description

Facing away from machine, jump up and grasp handles, supporting body with elbows. Exhale. Pull knees to chest. Inhale. Allow legs to drop down. Control action both up and down.

Muscles Conditioned

Abdominals

Training Recommendations

Control leg action during lowering and lifting phases of this exercise.

Shoulder Press

General Description

Sit facing machine, shoulders touching handles, back erect, feet inside rung of stool. Exhale. Extend arms fully. Inhale. Lower to starting position.

Muscles Conditioned

Deltoids Triceps

Training Recommendations

Do not arch back during lifting phase of this exercise.

Knee Extension

General Description

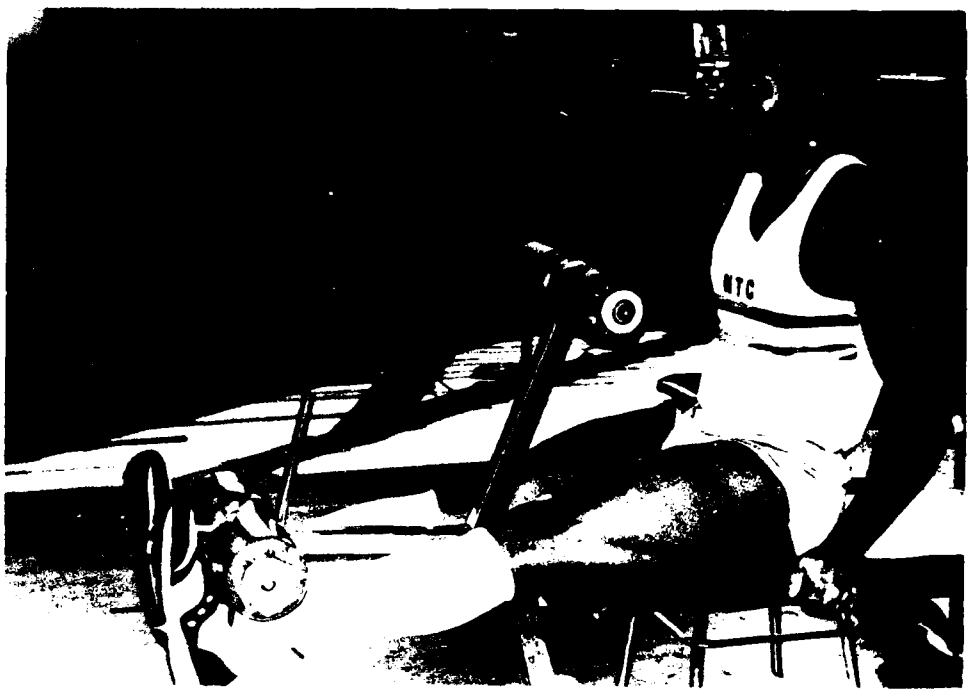
Sit erect, back of knees at end of bench, place feet under lower rollers, grip edges of bench.
Exhale. Extend both legs. Inhale. Lower weights to starting position.

Muscles Conditioned

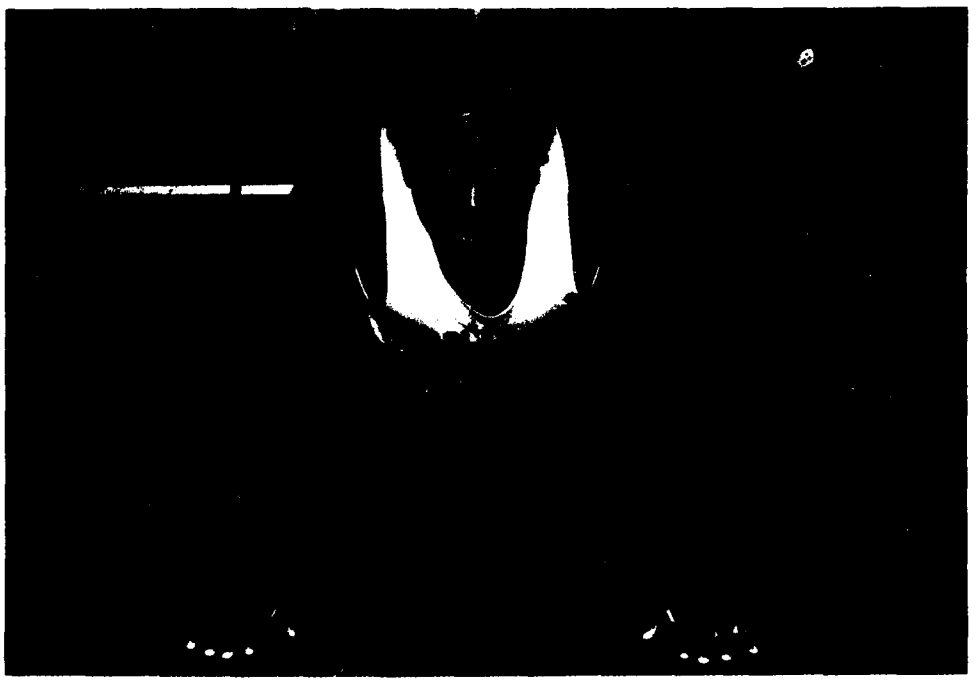
Quadriceps

Training Recommendations

Free weights should be used if arm curl station is operational.



Push-Ups



General Description

Place hands under shoulders, fingers pointed forward, palms flat on deck. Push up to straighten arms, keeping back straight. Lower body by bending elbows to touch deck. Maximum number in 15 seconds.

Muscles Conditioned

Triceps Deltoids

Training Recommendations

Arms, back, buttocks and legs should be straight from head to heels during this exercise.

Jumping Jacks

General Description

From standing position, move feet apart, at same time extend arms from sides and touch hands together over head. Without stopping, bring feet together and arms back to original position.

Muscles Conditioned

Deltoids Calves

Flutter Kicks

General Description

Lay flat on stomach, arms extended above head, legs extended. Raise legs and upper torso so that only belly is touching deck. Kick legs rapidly for 15 second count.

Muscles Conditioned

Lower Back

Training Recommendations

This exercise should be performed with arms and legs fully extended.

Training Recommendations

1. During each circuit weight training session participants may begin to exercise at any of the 15 exercise stations. Participants should move sequentially from station-to-station, i.e., an individual starting at station 4 (leg press) should move to station 5 (arm dip) then station 6 (sit-up), etc.

2. It is recommended that participants exercise for 15 seconds at each station and be allowed 15 seconds to move to the next station and adjust weights. To facilitate this training format, it is suggested a supervisor blow a whistle at 15-second intervals during each workout.

3. Depending upon space and equipment availability, the recommended exercise stations listed above may be deleted and alternative exercises may be added.

Circuit Weight Training Schedule (Ship Commands)

Basic Conditioning Program

Week	Frequency	Intensity	Duration	Work/Rest Cycle
1 - 4	3 days/week	60% 1RM	2 circuits	15 sec/15 sec
5 - 8	3 days/week	60% 1RM	2 circuits	15 sec/15 sec
9 - 12	3 days/week	60% 1RM	3 circuits	15 sec/15 sec

Advanced Conditioning Program

Week	Frequency	Intensity	Duration	Work/Rest Cycle
13 - 16	3 days/week	60% 1RM	2 circuits	30 sec/15 sec
17 - 20	3 days/week	60% 1RM	3 circuits	30 sec/15 sec
21 - 24	3 days/week	60% 1RM	3 circuits	30 sec/15 sec

Training Recommendations

1. It is recommended that exercise sessions be conducted 3 times per week on alternative days.

2. Exercise intensity level is calculated by determining the maximum weight an individual can lift for each of the weighted exercises. Participants then may exercise at approximately 60% (round to nearest weight plate) of their determined one repetition maximum (1RM) strength. Weights should be adjusted accordingly every 4 weeks.

Appendix I
Free-Weight Training

For each of the exercises listed below work at a weight that is the maximal amount that you can lift for 8 to 12 repetitions. Perform 2 to 3 sets of these exercises with approximately 2 minutes between each set. Work outs should be conducted 3 times per week on alternate days of the week. Re-calculate your 8 to 12 repetition maximum weight every 2 weeks to accomodate for gains in strength. The rules for proper exercise can be stated very briefly:

1. Perform all exercises using full range of motion to assure development of the entire length of the involved muscles and to improve flexibility.

2. Perform all exercises in a smooth, controlled manner at a moderate pace. Do not try to jerk the weight up during the lifting phase.

3. Never lift heavy weights without a spotter at your side.

Arm-Curl

General Description

Grasp the bar with the palms facing forward. Stand upright with feet shoulder width apart. With the barbell held in front of the hips, flex the elbows and lift the weight until the bar touches the upper chest. Lower the barbell to the hip-level position. Exhale during the upward movement and inhale on the downward movement.

Muscles Conditioned

Biceps Forearms

Standing Press

General Description

Grasp the bar with the palms facing to the rear and assume the standing position. Curl the weight to the upper chest position. Exhale and press the bar upward to an overhead position. Inhale as you lower the bar to the chest position. Each time the bar is pressed upward, one repetition has been completed.

Muscles Conditioned

Deltoids Triceps

Heel Raiser

General Description

Assume a standing position, feet shoulder width apart, with the bar across the shoulders. The toes and ball of each foot should be on the floor. Rise to your toes and then lower your heels back to the floor. This represents one repetition.

Muscles Conditioned

Calves

Upright Row

General Description

Grasp the bar, hands close together, palms to the rear, and assume a standing position. Starting with the bar held in front of the hips, flex the elbows and the shoulder girdle muscles and lift the bar straight up to a position under the chin. Exhale as you lift the bar. Inhale as you lower the bar to the hip position. Each time the bar returns to the hips, one repetition has been completed.

Muscles Conditioned

Deltoids

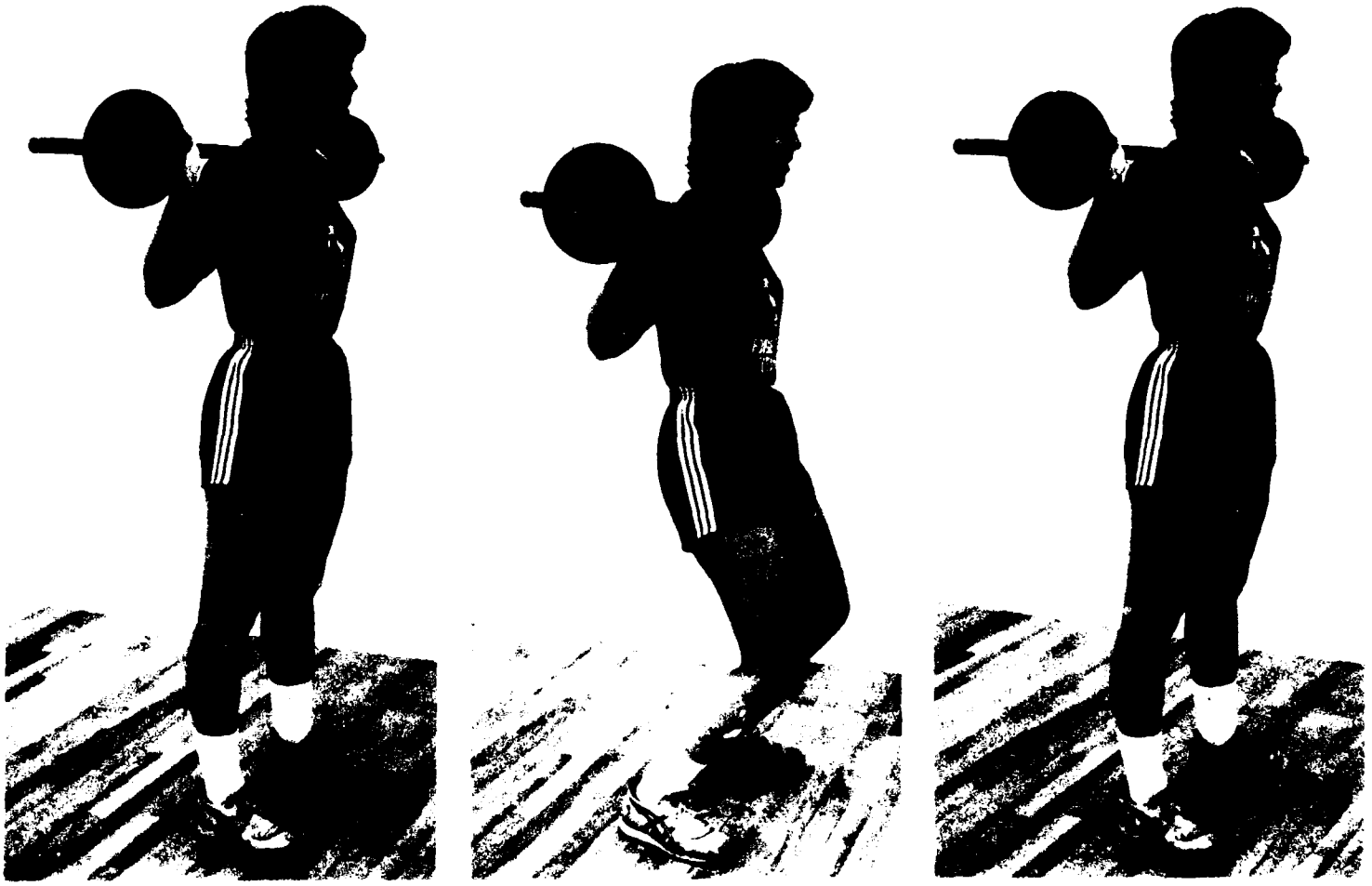
Quarter Knee-Bend

General Description

Place the bar on your shoulders. Stand with your feet apart. Keeping your feet flat, lower your body into a quarter knee-bend position. Stand and repeat. This constitutes one repetition.

Muscles Conditioned

Quadriceps Hamstrings



Reverse Curl

General Description

Grasp the bar with the palms facing to the rear and assusme a standing position, feet shoulder width apart. With the bar held in front of the hips, flex the elbows and lift the weight until the bar touches the upper chest. Lower the bar to the hip-level position. Each time the bar touches the chest, one repetition has been completed.

Muscles Conditioned

Forearms

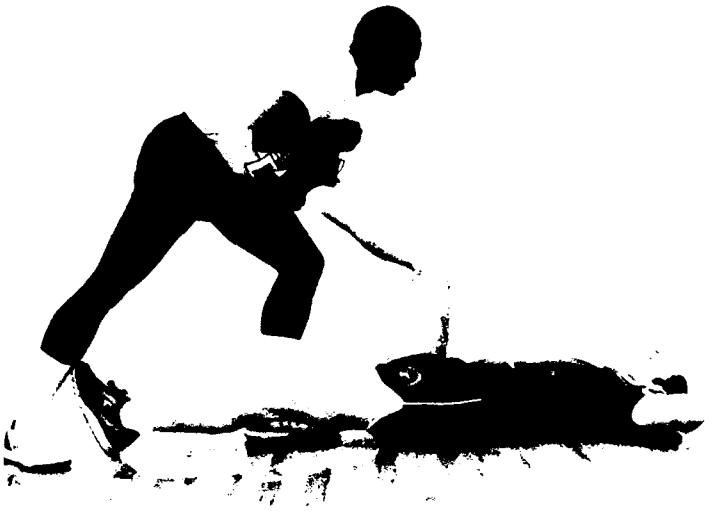
Appendix J
Partner-Resisted Training

To produce optimal results the partner should be approximately the same size and strength as the exerciser. The partner providing the resistance should determine the speed of movement for the exerciser. The resister and exerciser should perform each exercise on a two count movement with a four second recovery time. The resister and exerciser should communicate with each other to insure that neither too much resistance (which may cause injury) nor too little resistance (which will not improve strength) is applied. The resister and exerciser should alternate, each performing 8-12 repetitions for each exercise. It is important, as in any form of exercise, to allow time before and after partner-resisted exercise for warm-up and cool-down. Also allow at least 48 hours between hard muscular workouts.

Single Leg Press

General Description

1. Lie on your back with arms about 6 inches from your sides or hands behind the head.



2. Bring one knee to your chest and place the bottom of your foot in the middle of the resister's chest/stomach.

3. On a 2-second count, push upward against the resister by extending the knee as far as possible.

4. On a 4-second count, return the knee to the starting position

5. Perform 8-12 repetitions to muscle failure and repeat with the other leg.

Resister Steps

1. Stand with your feet at least shoulder width apart.

2. Rest your chest/stomach against exerciser's foot, holding the foot and ankle with your hands.

3. Apply force with your body weight while maintaining your balance.

Muscles Conditioned

Quadriceps Gluteal

Knee Curl

General Description

1. Lie prone with your legs straight.

2. Bend your knee and pull your heel towards your buttocks on a 2-second count.

3. Keep your ankle and toes pointed back towards your knee.

5. Perform 8-12 repetitions.

Resister Steps

1. Kneel beside the exerciser's hip.

2. Place one hand above the knee cap of the exercised leg.

3. Place the other hand at the heel of the same leg.

4. Resist the curling motion upward and then push the leg back to the starting position.

Muscles Conditioned

Hamstrings

4. On a 4-second count down, resist your partner as your leg is pushed to the starting position.

Push-Ups

General Description

1. Assume a good push-up position.

2. Lower your body against the downward resistance of the resister.

3. This is done on a 4-second count.

4. Now push upward against the resistance on a 2-second count until the elbows are locked.

5. Perform 8-12 repetitions to muscle failure

Resister Steps

1. Straddle the exerciser's hips.

2. Place both hands in the middle of the exerciser's upper back.

3. Resistance should be light when the exerciser is going up and moderate to heavy on the downward motion.

Muscles Conditioned

Pectorals Triceps

Seated Military Press

General Description

1. Take a comfortable seated position.

2. Begin the exercise with the palm of the hand at shoulder level.

3. Push the hands upward at a 2-second count until the elbows are fully extended.

4. Return slowly to the starting position by resisting downward pressure for a 4-second count.

5. Perform 8-12 repetitions to muscle failure.

Resister Steps

1. Take a standing position behind the exerciser.

2. Support the exerciser's back with one or both legs.

3. Place hands palms down on exerciser's hands.

4. Resist upward motion by exerciser, and then force the exerciser's hands down to the starting position.

NOTE: Do not allow the exerciser to lean forward or backward.

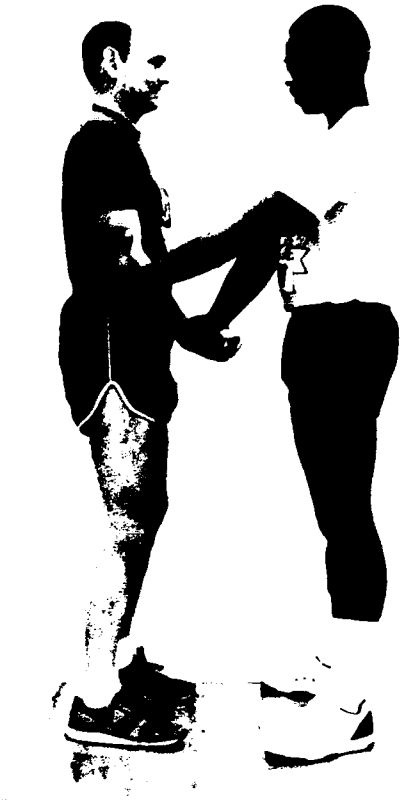
Muscles Conditioned

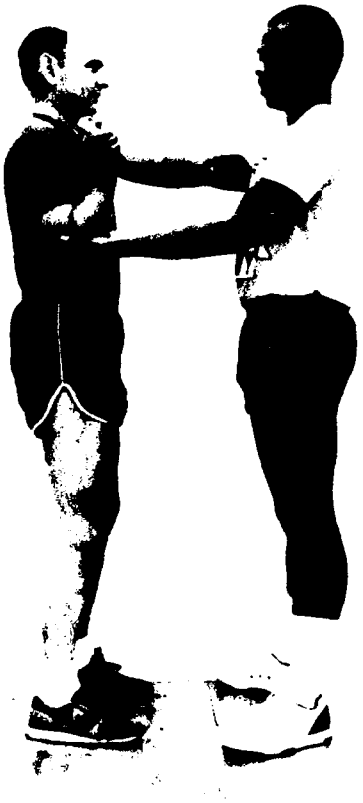
Deltoids

One Arm Biceps-Curl

General Description

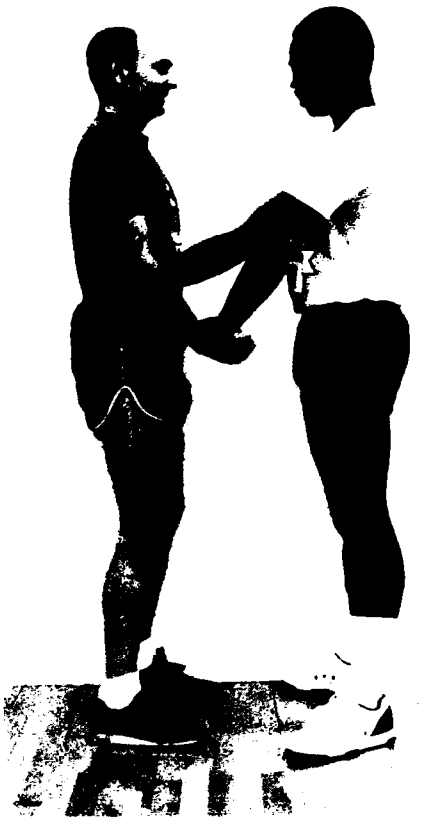
1. Take a standing position, knees slightly flexed with your back flat.





2. With your arm close to your side, palm up, bending at the elbow, bring your hand toward your chest in a 2-second count.

3. Return to the original starting position by slowly fighting downward resistance for a 4-second count.



4. Perform 8-12 repetitions to muscle failure.

Resister Steps

1. Take a standing position facing the exerciser with feet spread shoulder width apart.

2. With your outside hand, support the elbow of the exerciser, to prevent any unwanted motion.

3. With the inside hand, palm down and thumbs interlocked, provide the resistance in both the upward and downward motion.

Muscles Conditioned

Biceps

Pull Downs

General Description

1. Take a comfortable seated position.

2. Cross the arms behind the head with elbows bent.

3. Force the elbows downward, on a 2-second count, until they touch the rib cage.

4. Return to the starting position by resisting the upward pull of the resister for a 4-second count.

5. Perform 8-12 repetitions to muscle failure.

Resister Steps

1. Take a standing position behind the exerciser.

2. Support the exerciser's back with one or both legs.

3. Resistance is applied by placing hands at the exercisers elbows for both the up and down phases of the movement.

NOTE: Do not allow the exerciser to lean forward or backward.

Muscles Conditioned

Latissimus dorsi

Seated Row

General Description

1. Sit facing the resister.

2. Legs are shoulder width apart with knees slightly flexed.

3. Clasp hands with the resister, palms down and elbows extended.

4. Pull the resister's hands towards your arm pits on a 2-second count.

5. Return to the starting position on a 4-second count.

6. Perform 8-12 repetitions to muscle failure.

Resister Steps

1. Sit facing the exerciser.

2. Interlock the legs with the exerciser's legs.

3. Clasp hands with the exerciser, palms up.

4. Resist arm movement of exerciser.

Muscles Conditioned

Rhomboid Middle trapezius

Appendix K
Curl-Up/Push-Up Training

To improve performance in the curl-up test, curl-back exercises should be performed three to four sessions per week. If the curl-up test score is less than the satisfactory category, three sets of curl-backs should be performed each exercise session. A curl-back is performed in the same position as the curl-up except the hands are used to hold the knees or backs of the thighs throughout the exercise. Using the hands, the individual begins by pulling the chest up to the legs. From this position, the trunk is slowly lowered to the deck (through a count of four seconds). The chest must be curled forward throughout the exercise.

If the curl-up test score is satisfactory, but less than good, conduct three sets of PRT-style curl-ups per session.

If the curl-up test score is greater than good, but less than outstanding, conduct two sets of PRT-style curl-ups per session.

One set equals the maximum number of curl-ups (or curl-backs) that can be performed without pausing. Allow a two to three minute rest between sets. Continue this training recommendation until the curl-up goal is achieved.

To improve performance in the push-up test, let-down exercises should be performed three to four sessions per week. If the push-up test score is less than satisfactory, conduct three sets of let-down per session. A let-down is performed in the same position as the push-up, except that the body is slowly lowered to the deck (through a count of 12), pausing momentarily every few inches. When the chest is on the deck, relax, then use the knees to return to the starting front rest position.

If the push-up test score is satisfactory, but less than good, conduct three sets of PRT-style push-ups per session.

If the push-up test score is greater than good, but less than outstanding, conduct two sets of PRT-style push-ups per session.

One set equals the maximum number of push-ups (or let-downs) that can be performed without pausing. Allow a two to three minute rest period between sets. Continue this training recommendation until the push-up goal is achieved.

Appendix L
Sit-Reach Training

To improve performance on the sit-reach test, the following exercises should be performed daily:

Hamstring Stretch

Sit on the floor with both legs out straight with ankles flexed (toes straight up). Lean upper torso forward bending at the hips. Hold for 15-30 seconds. Repeat movement. The stretch should be felt in the hamstrings and the lower back.

Lower Back Stretch

Lie on back and clasp hands under left knee and pull to chest. Do not strain. Hold for 15-30 seconds. Repeat with right leg. The stretch should be felt in the lower back. Clasp hands under both knees and pull to chest. Hold for 30-45 seconds. The stretch should be felt in the lower back.

Achilles Tendon and Calf Stretch

Stand facing wall. Place palms of hands flat against wall. The feet should be about 12 inches apart. Bend the right knee while the left leg is straight behind you. Keep the left heel on the floor with toes pointing straight ahead. Slowly move hips forward until a stretch is felt in the calf of the left leg. Hold for 15-30 seconds. Repeat with right leg. The stretch should be felt in the calf and the Achilles tendon.

Appendix M
Workout Log

Keep track of your fitness progress with this handy log. Write the appropriate initial on each day you exercise aerobically for at least 30 minutes, with your heart rate within your target zone. Each aerobic work-out aboard ship or shore is worth one point.

Reward yourself each time you reach the 25 point mark. You should be able to reach 25 points within 8 weeks (about 3 days a week of aerobic activity). Gradually increase your pace (intensity), length, and/or frequency of work-out as you progress.

Log your muscular conditioning work-outs (i.e. weight training), too!

ACTIVITY		
	Aerobic Dance	A
	Bicycling (including stationary)	B
	Fitness Walking (including treadmill)	W
	Jogging/Running (including treadmill)	J/R
	Rowing	RO
	Stair Climbing	SC
	Swimming	S
	Other Aerobic Exercises	OA

		SUN	*MON*	*TUE*	*WED*	*THU*	*FRI*	*SAT*	*Week's Total Points*
Week 1	activity								
	No. of Minutes								
Week 2	activity								
	No. of Minutes								
Week 3	activity								
	No. of Minutes								
Week 4	activity								
	No. of Minutes								
Week 5	activity								
	No. of Minutes								
Week 6	activity								
	No. of Minutes								
Week 7	activity								
	No. of Minutes								
Week 8	activity								
	No. of Minutes								

Don't stop, keep your fitness progress going, start a new log! *Total Points*

Appendix N
Educational Resources

HEALTH AND PHYSICAL READINESS PUBLICATIONS

These publications are available from Navy Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.

	STOCK NUMBER
- GOOD NUTRITION	0506-LP-800-0020
- THE JOY OF JOGGING	0506-LP-800-0050
- WALKING FOR FUN AND FITNESS	0506-LP-800-0055
- FUN, FITNESS AND YOUR FEET	0506-LP-800-0060
- PHYSICAL FITNESS AND YOUR HEART	0506-LP-800-0010
- SMOKING AND YOUR HEART	0506-LP-800-0065
- STOP SMOKING	0506-LP-800-0035
- U.S. NAVY WAY TO A HEALTHY BACK	0506-LP-800-0780
- ABOUT BACK PROBLEMS	0506-LP-800-0070
- ABOUT STRESS MANAGEMENT	0506-LP-800-0000
- ABOUT WELLNESS	0506-LP-800-0005
- YOU AND YOUR BLOOD PRESSURE	0506-LP-800-0040
- COMMAND FITNESS COORDINATOR REFERENCE AND TRAINING MANUAL	0506-LP-175-4200

Health and Physical Readiness Videos

Videos are available from Navy libraries. Address requests to:

COMMANDING OFFICER
NAVAL EDUCATION, TRAINING AND SUPPORT CENTER ATLANTIC
NAVAL STATION, BLDG W313
NORFOLK, VA 23511

COMMANDING OFFICER
NAVAL EDUCATION, TRAINING AND SUPPORT CENTER PACIFIC
FPO SAN DIEGO, CA 92132

VIDEO	**SAVPIN NO.**
- NAVY PHYSICAL READINESS PROGRAM	802966DN

Presentation of OPNAVINST 6110.1 series, purposes, policies, procedures, and documentation of the physical readiness test and percent body fat. Audience: Command Fitness Coordinators (CFC), CFC Assistants, and all Navy personnel.

- GENERAL MILITARY TRAINING, QUALITY OF LIFE	
-- BACK INJURY PREVENTION	803503DN
-- STRESS MANAGEMENT	803505DN
-- PHYSICAL FITNESS AND SPORTS HEALTH AND PHYSICAL READINESS	803506DN
-- NUTRITION AND WEIGHT/FAT CONTROL	803507DN
-- DRUG AND ALCOHOL ABUSE ZERO TOLERANCE	803508DN
-- SMOKING CESSATION	803404DN

Civilian Physical Fitness Publications

Cooper, Kenneth. **The Aerobics Program for Total Well-Being.** M. Evans and Co., Inc., 1982.

Cooper, Kenneth. **The Aerobic Way.** New York: M. Evans and Co., Inc., 1977.

Cooper, Kenneth. **The New Aerobics** New York: Bantam Books, 1970.

Cooper, Mildred and Kenneth. **Aerobics for Women.** New York: Bantam Books, 1972.

Fixx, James F. **The Complete Book of Running.** New York: Random House, 1977.

Getchell, Bud. **Physical Fitness: A Way of Life.** John Wiley and Sons, 1983

Glover, Bob and Shepard, Jack. **The Runner's Handbook.** New York: Penguin, 1978.

Higdon, Hal. **Fitness After 40.** Mountain View, CA: Anderson World Books, Inc., 1977.

Kostrubala, Dr. Thaddeus. **The Joy of Running.** New York: Pocket Books, 1977.

Mirkin, Dr. Gabe and Hoffman, Marshall. **The Sports Medicine Book.** Little-Brown and Company, 1978.

Sheehan, Dr. George. **Dr. Sheehan on Running.** Mountain View, CA: Anderson World Books, Inc., 1975.

Sorensen, Jacki. **Aerobic Lifestyle Book.** New York: Poseidon Press, 1983.

Southmayd, Dr. William and Hoffman, Marshall. **Sports Health, The Complete Book of Athletic Injuries.** New York: Quick Fox, 1981.

Westcott, Wayne. **Strength Fitness.** Newton, MA: Allyn and Bacon, Inc., 1982.

Civilian Physical Fitness Organizations

American Alliance For Health, Physical Education, Recreation and Dance, 1900 Association Drive, Reston, VA 22091.
Telephone: (703)476-3400

National Health Information Clearinghouse, P.O. Box 1133, Washington, D.C. 20013.
Telephone: (800)336-4797; (703)522-2590 in Virginia.

President's Council on Physical Fitness and Sports, Suite 71 3, 450 5th St., N.W., Washington, D.C. 20201.
Telephone: (202)272-3421.

American College of Sports Medicine, P.O. Box 1440, Indianapolis, IN 46206.
Telephone: (317)637-9200.

Appendix O
Assistance Resources

HEALTH AND PHYSICAL READINESS DIVISION

Naval Military Personnel Command, Health and Physical Readiness Division (NMPC-68), Washington, D.C. 20370 – 5605.
AV – 224-5742, CO – 202-694-5742/46.

NAVY FLEET RECREATION COORDINATORS

		AUTOVON	COMMERCIAL
EAST COAST	Boston, MA	955-4958	671-242-5672
	New London, CT	241-3002	203-449-2295
	New York, NY	456-2649	718-522-2649
	Earle, NJ	449-7059	201-462-9500
	Philadelphia, PA	443-8760/8761	215-952-8760
	Little Creek, VA	680-8585	804-464-8585
	Norfolk, VA	564-8489	804-444-8489
	Portsmouth, VA	961-3835	804-396-3835
	Charleston, SC	563-1083	803-743-1083
	Mayport, FL	960-5551	904-246-5551
	Pascagoula, MS	457-4604	601-769-4396
WEST COAST	Seattle, WA	941-3863	206-526-3863
	Alameda, CA	686-3536	415-869-2632
	Long Beach, CA	360-6311	213-547-6311
	San Diego, CA	958-1484	619-235-1484
	North Island	951-5957/7105	619-437-5957
OVERSEAS	Naples, IT	625-4116	011-3981-724-1579
	Sigonella, IT	624-5273	011-3995-82-8564
	Rota, SP	727-2564	011-3456-82-8564
	Guantanamo Bay Cuba	564-4063	011-5399-2249
	Roosevelt Roads Puerto Rico	831-5401/5305	809-863-2570
	Pearl Harbor, HI	315-474-4182	808-474-4182
	Guam	339-7284	011-6713-39-7284
	Subic Bay, PI	884-6748	011-6389-884-8403
	Yokosuka, JA	234-7250	0956-24-6111x3434

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